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| 10/597,736  | 08/04/2006  | Hamid Saadatmanesh   | 122170.00025US      | 5539             |
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| QUARLES & BRADY LLP<br>ONE SOUTH CHURCH AVENUE, SUITE 1700<br>TUCSON, AZ 85701-1621 |             |                      |                     |                  |
| EXAMINER  |             |                      |                     |                  |
| BELL, WILLIAM P   |             |                      |                     |                  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |
| 1791  |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pat-dept@quarles.com

### Office Action Summary

**Application No.**

10/597,736

**Applicant(s)**

SAADATMANESH, HAMID

**Examiner**

WILLIAM P. BELL

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 1-9, 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-18 and 21-23 is/are rejected.
- 7) ☐ Claim(s) 12 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/4/2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse of claims 10-18 and 21-23 in the reply filed on 2 June 2009 is acknowledged. The traversal is on the ground(s) that no basis for restriction has been articulated as required under the Manual of Patent Examining Procedures (MPEP 808). This is not found persuasive because the requirements recited by Applicant do not form the basis for requiring restriction among multiple inventions in a national stage application submitted under 35 U.S.C. 371, such as the instant application. For such applications, restriction may be required when the application lacks unity of invention under 37 CFR 1.475. As presented in the previous Office action, the instant application lacks unity of invention because the technical feature common to each group, a hold support structure reinforced with a high tensile strength material, is not a contribution over the prior art. See MPEP 1893.03(d).

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1-9, 19, and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 2 June 2009.

***Claim Objections***

3. Claim 12 is objected to because of the following informalities: the word "least" appears to have been misspelled in line 11 of the claim. Appropriate correction is required.
4. Claim 17 is objected to because of the following informalities: the word "proceeds" appears to be used incorrectly. Examination will be based on the assumption that "proceeds" should read as --precedes--. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claims 12-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
7. Claim 12 recites the limitation "the epoxy resin aggregate" in line 8. There is insufficient antecedent basis for this limitation in the claim. Examination will be based on the assumption that part (b) of the claim should read as --the step of pouring the aggregate material into the hollow support comprises pouring an epoxy resin aggregate ...--.
8. Claim 16 recites the limitation "the composite dowel material" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 10, 11, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Minayoshi (U.S. Patent No. 6,890,461). Regarding claim 10, Minayoshi teaches a method for repairing, in situ, a hollow support structure (see column 1, lines 12-14 and 54-58) that has a deteriorated portion (see column 1, lines 15-24, wherein the area at and below the ground surface is the deteriorated portion) and an access opening (see column 1, lines 56-58), comprising the steps of placing a high tensile strength material in the hollow support structure to at least a depth such that the high tensile strength material extends over the depth of the deteriorated portion (see column 10, lines 51-54, wherein the aramid rods are high tensile strength material; see Figure 8, wherein rods 307a extend through both the above ground and below ground section of the hollow pole); pouring an aggregate material into the hollow support structure to incorporate the high strength material in to the aggregate that fills the hollow support structure at least over the depth of the deteriorated portion (see column 12, lines 29-38); and allowing the aggregate to cure in situ (see column 14, line 51).

Regarding claim 11, Minayoshi teaches a method wherein the hollow support structure has an in ground portion and an above ground portion (see Figure 8), and wherein the hollow support structure has a deteriorated portion extending at least partially into the in ground portion (see column 1, lines 15-24), and an access opening in the above ground portion (see openings 305a and 305b in Figure 8).

Regarding claim 18, Minayoshi teaches a method of forming in situ a dowel structure that reinforces a portion of a hollow support structure (see column 1, lines 54-56 and Figure 8, wherein the reinforcing structure forms a dowel), comprising the steps of determining the depth of the portion of the hollow support structure that is to be reinforced (see column 11, lines 41-44 and 52-57; see column 12, lines 23-28); placing a high tensile strength reinforcement component inside the hollow support structure such that the high tensile strength component extends at least over the depth of the portion of the hollow support structure that is being reinforced (see column 10, lines 51-54; see column 12, lines 23-28); pouring into the hollow support structure an epoxy aggregate that substantially fills the hollow support structure at least over the depth of the portion of the hollow support structure that is being reinforced (see column 12, lines 29-35); and allowing the epoxy aggregate to cure in situ (see column 14, line 51).

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minayoshi as applied to claim 10 above. Minayoshi teaches that in situation where the hollow pole is located such that the in ground portion can be excavated, an aramid fiber seat may be wrapped around the exterior of the pole to provide further reinforcement (see column 15, lines 11-18). Minayoshi teaches that this step may be performed after the interior of the pole is reinforced (see column 15, line 11). One of skill in the art recognizes that hollow poles such as those taught by Minayoshi may at times deteriorate to the point that holes are formed in the annular wall of the pole, allowing water to penetrate the interior of the pole. In such situations, it would have been obvious to one of ordinary skill in the art at the time of the invention to have applied the aramid fiber seat to the exterior of the pole before reinforcing the interior of the damaged area could be cleaned of any debris which may have penetrated the pole and so that the aggregate would not leak out of the hole.

13. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minayoshi as applied to claim 11 above, and further in view of Thom (German Patent No. 19625259). A machine translation of Thom has been provided for convenience; all text citations to Thom refer to paragraph numbers in the machine translation rather than the original German text. Regarding claim 12, Minayoshi teaches a method wherein the step of pouring the aggregate into the hollow support comprises pouring an epoxy resin aggregate (see column 12, lines 33-35) in an amount and to a depth such that the epoxy resin aggregate fills the hollow support structure at least over

the depth of the deteriorated portion and the epoxy resin aggregate extends to the access opening (see Figure 8). Minayoshi does not teach that the step of providing a high tensile strength material in the hollow support structure comprises providing a fabric sleeve having a mouth, placing the fabric sleeve through the access opening, forcing the sleeve into the in ground portion to at least an in ground depth that extends over the deteriorated portion, and locating the mouth of the sleeve in the access opening. Minayoshi does teach providing a high tensile strength material in the form of a sleeve around the exterior of the hollow pole in those situations where the in ground portion of the hollow pole can be excavated (see column 15, lines 11-18). Thom teaches a method of reinforcing a hollow pole (see page 1, paragraph 8) comprising the steps of placing a fabric sleeve having a mouth (see tubular sleeve 2 in Figure 1) through an access opening in the hollow pole (see page 2, paragraph 23) and forcing it into the interior of the pole so that it extends into the in ground portion to a depth that extends of the deteriorated portion of the pole (see page 3, paragraph 1), expanding the sleeve until it contacts the inner surface of the pole (see page 3, paragraphs 4-5), and solidifying the sleeve (see page 3, paragraph 10). Thom teaches that the sleeve comprises a high tensile strength material (see page 2, paragraph 12 and page 3, paragraph 12) which is impregnated with epoxy resin (see page 2, paragraph 14 and page 3, paragraph 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the methods taught by Minayoshi and Thom for the benefit of further reinforcing the hollow pole, especially in those situations in which the in ground portion of the pole cannot be excavated. While Thom does not



teach locating the mouth (i.e., the top) of the sleeve in the access opening, it would have been obvious to one of ordinary skill in the art at the time of the invention to have done so for the convenience of being able to control the flow of the aggregate into the center of the sleeve.

Regarding claim 13, Minayoshi does not teach providing a fabric sleeve. Thom teaches a method wherein the fabric sleeve is expanded by use of the "memory effect" of the sleeve material (see page 2, paragraphs 3-5), but can also be expanded by other methods such as inflation or mechanical spreading (see page 1, paragraph 14). Closing the bottom end of the sleeve and pushing the sleeve into the hollow support with a rod represents a much simpler method of inserting the sleeve into the pole than is taught by Thom. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method taught by Minayoshi and Thom by closing the bottom of the sleeve and pushing it into place with a rod for the benefit of eliminating the need for and cost associated with the "memory effect" material.

14. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Minayoshi and Thom as applied to claim 12 above, and further in view of Hillyer (U.S. Patent No. 3,477,979). Minayoshi teaches a method wherein the aggregate is mixed from sand, gravel, and epoxy (see column 12, lines 33-38), but does not explicitly state that an epoxy hardener is used. However, it is well known in the art that epoxy resins require a hardener compound to initiate the crosslinking reaction which solidifies them. For example, Hillyer teaches an epoxy containing concrete which comprises 20-80% epoxy and 1-50% curing agent or hardener (see column 7, lines 20-

25). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method taught by Minayoshi with the hardener taught by Hillyer, since hardeners are required for proper utilization of epoxy resins. It further would have been obvious to one of ordinary skill in the art at the time of the invention to have optimized the composition of the epoxy aggregate taught by Minayoshi, including the relative amounts of epoxy, hardener, sand, and gravel, for the benefit of providing a suitable combination of stiffness of the solidified aggregate and adhesion of the aggregate to the hollow structure.

15. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thom in view of Minayoshi. Regarding claim 21, Thom teaches a method for preparing a hollow support structure (see page 1, paragraph 8), comprising the steps of providing a fabric sleeve of high tensile strength fabric having a mouth (see page 2, paragraph 22 and tubular sleeve 2 in Figure 1; see page 2, paragraph 12 and page 3, paragraph 12); placing the fabric sleeve through an access opening in the hollow support structure (see page 2, paragraph 23); and forcing the sleeve into the hollow support structure to a desired depth (see page 3, paragraph 1). Thom does not teach locating the mouth of the sleeve in the access opening so that an epoxy resin aggregate can be poured into the hollow support structure through the mouth of the sleeve and to the desired depth. Minayoshi teaches a method of reinforcing a hollow support structure comprising pouring an epoxy resin aggregate into an opening in the hollow support structure (see column 12, lines 33-35 and Figure 8). It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined

the methods taught by Thom and Minayoshi for the benefit of further reinforcing the hollow support structure, especially in those situations in which the in ground portion of the support structure cannot be excavated. While Thom does not teach locating the mouth (i.e., the top) of the sleeve in the access opening, it would have been obvious to one of ordinary skill in the art at the time of the invention to have done so for the convenience of being able to control the flow of the aggregate into the center of the sleeve.

Regarding claim 22, Thom teaches a method wherein the fabric sleeve is expanded by use of the "memory effect" of the sleeve material (see page 2, paragraphs 3-5), but can also be expanded by other methods such as inflation or mechanical spreading (see page 1, paragraph 14). Closing the bottom end of the sleeve and pushing the sleeve into the hollow support with a rod represents a much simpler method of inserting the sleeve into the pole than is taught by Thom. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method taught by Thom and Minayoshi by closing the bottom of the sleeve and pushing it into place with a rod for the benefit of eliminating the need for and cost associated with the "memory effect" material.

16. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Thom and Minayoshi as applied to claim 22 above, and further in view of Trimble (U.S. Patent No. 4,923,203). Thom teaches a method wherein the sleeve comprises carbon fibers (see page 2, paragraph 12, where coal is a machine translation of the German word "Kohle" in reference to carbon fibers). In the art of composites

fabrication, Trimble teaches providing a layer of glass fibers between metal materials and carbon fibers to prevent galvanic corrosion and improve adherence to the metal (see column 13, lines 55-68). Since Thom teaches that the hollow structure may be made of metal (see page 1, paragraph 2), it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the sleeve taught by Thom with an outer layer of glass fibers, as taught by Trimble, for the benefit of preventing corrosion and improving adhesion.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM P. BELL whose telephone number is (571)270-7067. The examiner can normally be reached on Monday - Thursday, 8:00 am - 5:30 pm; Alternating Fridays, 8:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wpb

/Richard Crispino/  
Supervisory Patent Examiner, Art Unit 1791